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THE JOURNAL OF THE FLORIDA MEDICAL ASSOCIATION
PUBLISHED MONTHLY

Volume I St. Augustine and Jacksonville, Florida, November, 1914 Number 5

ORIGINAL ARTICLES

SURGICAL AND CONSERVATIVE TREATMENT OF JOINT TUBERCULOSIS.*

RALPH DUFFY, A. B., M. D.,

Tampa, Fla.

The object of this paper is to give a survey of the various operative and non-operative methods used in the treatment of joint tuberculosis at the present time. The field covered is very large; the opinions encountered very diverse and conflicting. Very few generalities are in place, but as such I would say that our treatment today is more conservative than fifteen years ago, that joint tuberculosis in children is quite a different thing as to prognosis and treatment from joint tuberculosis in adults, and that proper hygienic care of the patient, that is, fresh air, good food, and rest, are more important than any one measure of treatment, operative or non-operative.

I shall first discuss non-operative methods of treatment.

Tuberculin.

The profession is much divided on the efficiency of tuberculin in surgical tuberculosis. Many are for it: many are against it. Long ago Virchow and Orth claimed that tuberculin caused a dissemination of the process, an objection that Koch vigorously combatted.

It is pretty generally agreed that its use in small doses (not over 1-1000 mg.) and in the right class of patients is not attended by ill effects. Febrile cases are not suited to the treatment. The average time between injections is ten days. The opsonic index should be determined frequently. Swenson, of Chicago, says that 1-1000 mg. every ten days is a working rule he has followed for a number of years. One observer advises to use the Von Pirquet test. If this is strongly positive it is to be assumed that tuberculin is not necessary, that the reaction of the body is already sufficient.

As to the tuberculin to be used, Murphy uses "old tuberculin." Many use Rosenbach's tuberculin. It may be injected under the skin of the chest or into the joint, and the febrile reaction should not exceed 99.6° F. (Murphy).

In this country Murphy, Ochsner, Packard, and Swenson are some of the writers who have had good results in joint tuberculosis. Abroad—Wilms, Rosenbach, Raw, and de Quervain extol its value. But, the general opinion of these writers is that it is to be regarded as adjuvant to surgical treatment. They claim that tuberculin given over long periods (½ to 2 years) will cure joint tuberculosis in its incipiency, but advanced tuberculosis must be removed with the knife before instituting the treatment. Other writers as Lovett, McLeod, believe the treatment to be worthless.

Roentgentherapy.

As far back as 1898 Kirmission in Paris reports the successful treatment of tuberculosis of the wrist in a boy of 17 years. Scattered reports occur in the literature from time to time: so especially are the writings of Iselin, Wilms, Baisch, Bardenheuer, and New.

The rays seem to disintegrate the tuberculosis granulations, thereby setting free substances toxic to the bacilli. It is not

*Read before the forty-first annual meeting of the Florida Medical Association at Orlando, May 13-15, 1914.

claimed at present that this treatment is to be used on the epiphyses of children under 14 years of age, owing to injury to the epiphyses and retardation of growth.

Most authorities advocate the use of an aluminum plate to shut off the soft rays which might burn the skin. It is the rule of most authorities to treat until erythema develops and then discontinue for two weeks. Iselin does not believe it necessary nor wise to cause erythema.

The ray does not improve the large joints. Pretty generally it is reserved for the hand, wrist, elbow and ankle. The treatment is naturally slow and should be continued for weeks and months. Those who have done most work along this line laud the treatment extravagantly, and among these are a number of surgeons as well as roentgenologists. From a review of the literature I would allot to the X-ray a subordinate place in the treatment of joint tuberculosis. There is very little written about it in American surgical literature. On the other hand, as against heliotherapy it can be carried out at any time, in any place and at much less expense.

Heliotherapy.

The treatment of joint tuberculosis by exposure to the sun's rays gives the most astonishing results, which I believe are too little appreciated by the profession at large. The reason for this lack of appreciation is patent. Sun-treatment requires many months and it may be several years to effect cure. The treatment is by all odds best undertaken at sanatoria in the mountains, and most of the patients have not the money.

The great pioneer in heliotherapy is Bernhard in Switzerland, followed, in 1903, by Rollier also working in the Swiss Alps at Leysin. These men working in sanatoria at altitudes of 3,500 to 4,500 feet, taking in all forms of surgical tuberculosis, at all ages, have published results that would seem to make absurd the operative diligence of Volkmann of a decade before. For a detailed account of the method I would refer the reader to the numerous papers of Rollier and to the recent papers of Dietrich and of Rothschild. In brief, the patients are first detained in bed for several days to acclimate them to the altitude. They are then exposed either entirely (Rollier), or partially (Bernhard) to the sunlight, at first for five or ten minutes and gradually up to 7 or 8 hours per day.

It is aimed to have the patient well tanned by the rays. Except in spondylitis, plaster is not used, but the patients are immobilized in extention apparatus. No surgical interference is performed or necessary. The patients in the matter of a week or so gain in strength, appetite and spirits. Tuberculous abscesses disappear, sinuses close, and ulcers skin over. Even bony sequestra are cast off, and what is more the joints in very many instances heal with retention of motion. All patients are kept in bed during treatment.

According to Bernhard the cure is effective through the actinic rays of the sun in that they destroy the bacilli, and through the hyperemia of the tissues, cause increased metabolism, and the production of anti-toxin; there also is the general effect due to increased nutrition.

In one publication, out of 369 cases, Rollier announces 78.3 per cent cured and 13 per cent improved. In his last publication of over 700 cases he gives the following results:

Of 95 cases of spondylitis, 77 cures.

Of 81 cases of coxitis, 59 cures.

Of 67 cases of tuberculous knee, 59 cures.

Of 20 cases of tuberculous elbow, 18 cures.

These statistics deal with both children and adults, both closed and fistulous cases.

It would seem that almost every visitor to Rollier's clinic comes away an enthusiast. Such active surgeons as Bardenheuer, von Eiselsberg and Hochenegg all have published endorsements of Rollier's results. Leuba in a recent paper gives the results of

94 cases of tuberculosis of the foot treated in Rollier's clinic with the sun's rays since 1903. Of these 94, 42 were suffering from fistulae and were brought to Leysin as the last resort before amputation. The most of the remainder were suffering from other forms of tuberculosis and came to the institute in a serious condition. The youngest patient was two and one-half years old, the oldest sixty-seven years. The localization of the disease was, in 54 cases, in the tibio-tarsal joint, and in 11 the calcaneus, in 19 the tarso-metatarsal joints and in 10 the tarsal joint. Investigation in December, 1912, showed that of the 35 cases without abscess, 33 were cured, and two improved; of 17 cases without abscess, 15 were cured, one stationary, and one death; and of 42 cases with fistulae 39 were cured, two improved and one stationary. Leuba states that many cases suffering from the disease from two to eight years and treated by means of injections of iodoform and tuberculin, partial resection, etc., and who entered the institute in a quite hopeless condition, were cured within a year by heliotherapy.

The cost of the treatment is the great drawback. Heliotherapy can be carried out in the lowlands and in cities, but the sun seems to lose much of its power by filtering through the atmosphere. However, Joachimsthal in North Germany, Jerusalem in Vienna and Bardenheuer in Cologne have gotten very good results in the lowland. Of all conservative forms of treatment this would seem the most effectual.

Passive Hyperemia.

Bier's treatment has undergone changes in the course of time. At first Bier used stasis for a day at a time, but experience showed that oedema, secondary infection, erysipelas, and cold abscesses became frequent complications. He made the rule therefor some years ago to apply treatment twice a day for an hour at a time, and to treat for many months. Secondaries are so avoided.

It is necessary to get the right grade of stasis. The members should be warm during the treatment, not cold, and pulse should be felt. It is improper to have deep cyanosis of the part. Bier recommends in some cases the preliminary use of the hot air bath.

Bier does not immobilize the part, nor does he combine the stasis with injection of iodoform-oil, or other chemicals. The treatment is very long: rarely is cure effected under nine months, and often not under eighteen months. He claims 80 per cent cures in hand tuberculosis; 73 per cent in elbow and 62 per cent in foot.

In a late paper Bier claims that the complications which he used to encounter such as oedema, secondary infections, and cold abscesses, he now avoids by the use of potassium iodide in large doses, which he claims has an antiphlogistic influence. He gives fifteen grains to two drachms per day and says that thereby he can use stasis three times a day for four hours at a time. He has cited exceptionally good results with this method.

Injection of Joints.

Of the treatment of joint tuberculosis by injection, I shall say only a word. Iodoform in oil or glycerine, phenol, iodine, and formaldehyde are the chemicals which have been used. The formaldehyde treatment introduced by Murphy, in this country, is the most widely used at present. The solution is 2 per cent liquor formaldehyde in glycerine prepared at least twenty-four hours before use. The amount used is 10 to 20 cc.

Operative Treatment.

Operative treatment of joint tuberculosis is almost exclusively reserved for adult patients. Joint tuberculosis in children is always treated conservatively except in very bad cases.

The types of operation are incision and drainage, which has fallen into disuse, excision and resection. The object of opera-

tion is two-fold, to remove the tuberculosis tissue and to destroy motion in the joint.

The weight of opinion is toward operative measures in adults. There are not many men who claim cures of the tuberculosis process in adults by rest and plaster casts. Then, too, the adult is mostly a wage earner and can not afford the long time necessary for conservative treatment. Resection is the operation mostly used. Cold abscesses are never opened, but are aspirated. Amputation is the operation of choice in very old or debilitated subjects.

The wrist, hip and spine are the joints which give the poorest showing, after operation. These joints are in general best treated conservatively even in adults.

Tuberculosis of the elbow, ankle, or shoulder is best treated by resection. Tuberculosis of the knee is always resected in adults. Severe cases in children are also best treated by resection. It is true resection hinders further growth, but so does conservative treatment.

To conclude, the foregoing has been intended as a delineation of the methods advocated by the leading writers and workers today on the subject. Which one of all the methods advanced shall be used in our next case? This we can not say in advance. Everything in connection with the patient must be taken into consideration. My own view is in general to use operative methods in adults and not to operate on children, but I sometimes think that my ideas on operation in these cases are biased by inexperience with conservative methods.

515 *Franklin St.*

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THE DIAGNOSIS OF PULMONARY TUBERCULOSIS*
and
THE TREATMENT OF TUBERCULOSIS.§

ROBERT H. MCGINNIS, M. D.,

Jacksonville, Fla.

Tuberculosis of the lungs is essentially a chronic disease. Miliary tuberculosis, an acute infection and difficult of diagnosis, often mistaken for typhoid fever, usually lasts after the lungs are involved about three months, is not considered in this paper. My remarks shall be confined to the diagnosis of the usual form of tuberculosis of the lungs, endeavoring to emphasize the early signs of the disease and how these signs may be elicited and interpreted.

The first and very important consideration is a complete history—family and personal. The patient should be allowed plenty of time to tell his own story of his ailment in his own way. By such a method the principal symptoms as they appeal to the patient are obtained. Points of importance in the history may be elucidated by a few well directed questions.

We will consider the subjective symptoms that have been elicited in the history.

SUBJECTIVE SYMPTOMS.

Loss of Appetite. Usually an early symptom. Not present in every case. Appetite may vary, one day good, another day limited.

Digestive Disturbances. A late symptom as a rule; however, may be present early.

Loss of Weight. May be the first symptom the patient notices. Especially is this true in young people. Older persons do not weigh themselves as often as the young.

Shortness of Breath on Exertion. A very early symptom. Is not due to the extent of lung involvement, but rather to the weakness from the infection. This symptom is also noticed early in young patients because they take more exercise than older persons.

Weakness, Lassitude. The early cases will call attention to this condition. Manifested by lack of energy in their work, disinclination to take exercise or walk long distances; a tired feeling. May sleep well, but wake of mornings feeling tired and languid.

Constipation. Very frequently an early symptom, possibly due to inability to eat sufficiently. It is nearly always present in a woman patient, especially in the beginning of the disease.

Diarrhea. Usually a late symptom and in most cases due to the extension of the infection to the bowels.

Pain. Usually a late symptom and due to involvement of the pleura. If an early symptom is confined to apices of lungs and also due, in most instances, to pleura involvement. Quite frequently, however, there is pain at the base of the lung opposite the one involved in the tuberculosis process and a slight pleurisy may be present at this point.

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*Read before the forty-first annual meeting of the Florida Medical Association at Orlando, May 13-15, 1914.

§Read before the Duval County Medical Society at Jacksonville, June, 1913.

Many cases terminate fatally without pain having been experienced.

Cough. In early cases the patient is prone to deny the existence of cough. Inquiry, however, will elicit the admission of a slight clearing of the throat in the morning on getting out of bed or when first lying down at night. In more advanced cases cough becomes more and more pronounced and often very exhausting. In the late cases cough is one of the most constant and troublesome symptoms.

Expectoration. Patient will not admit of this symptom in early cases, until closely questioned, when a slight amount of expectoration is admitted, especially in the morning when dressing. Further interrogation will elicit a slight cough with expectoration when exercise is taken or extra physical effort is made. In late cases expectoration is usually abundant.

Night Sweats. Not an early symptom unless the patient is becoming rapidly weak. When the tuberculosis follows, or concomitant with, other debilitating disease, night sweats appear very early. The patient becomes more concerned about the sweats at night than possibly any other manifestation of the disease, because he thinks they produce the weakness and lassitude. Night sweats are frequent in advanced and late cases.

Chilly Sensations. Patient often complains of this symptom in early cases. He notices it most in the early afternoon. It is a frequent symptom in the advanced cases.

Hemorrhage. May be the first symptom the patient notices, but it is not the first symptom, if a good history is obtained. Many cases do not have hemorrhage during the entire course of the disease, but the majority do at some time have hemorrhage.

OBJECTIVE SIGNS.

Pulse. Rapidity of the pulse is an early sign, if not the earliest manifestation of the disease. In estimating the rate of the pulse the degree of excitement occasioned by the examination must be considered. Effort should be made to count the pulse while engaging the patient in conversation foreign to the subject of disease. For comparison the pulse should be counted during rest and after exertion. The pulse of tuberculosis is usually a feeble pulse even in the early stage of the disease.

Blood Pressure. A low blood pressure is not always an early sign of pulmonary tuberculosis. It is important and worthy of consideration if the systolic pressure is 110 or lower. The age of the patient must be considered. In well developed cases the blood pressure is nearly always low except in old people with blood vessel changes. However, we seldom have occasion to examine old people suffering from tuberculosis.

Fever is an early symptom especially in the afternoon. The morning temperature may be normal or sub-normal. If possible the temperature curve should be observed for several days taken at three or six hour intervals. Rest and inactivity may and usually does reduce fever. A point to be considered. A constant afternoon rise of temperature, be it ever so little, in a patient attending his usual duties, must be looked upon as extremely suggestive of tuberculosis.

Physical Signs in Chest Examination are enumerated and elucidated in textbooks and to take up the time allotted to this paper with them would be only a repetition and I shall merely touch on certain points emphasizing their importance.

No chest can be examined satisfactorily that has clothing on it. The patient should be stripped to the waist and standing or sitting in an erect position in front of the examiner.

Inspection reveals shape of chest, depression above and below the clavicles, degree of adipose tissue or emaciation, degree of movement during normal respiration, bulging of one side or other, color of skin, position of apex beat of heart.

Palpation and percussion in early cases may be of little service except in children

and very thin adults. In advanced cases palpation and percussion are valuable procedures and corroborative of other findings. In every chest examination these procedures should be employed.

Measurements. Measuring the chest affords the examiner opportunity to observe the degree of movement during respiration. After measuring the entire chest one side should be measured at a time in order that comparison be made.

Auscultation. Since the time of Laennec, who, for the first time presented the subject of auscultation in so concise and scientific a manner, this procedure has been of most value in examinations of the organs situated in the thoracic cavity. This occasion does not demand a reiteration of the signs elucidated by the breath sounds to the ear of the acute examiner. Emphasis, however, should be placed on the use of a good stethoscope, one the physician is accustomed to use, one with a small or medium size bell-shaped piece of guttapercha at the single end, the ear pieces of the same material and well fitting. With the small bell-shaped piece the spaces between the ribs can be better examined. Breath sounds are better heard between than over or through the ribs. The examination should be made under normal respiration first, then forced breathing may be requested of the patient. Forced breathing expands air vesicles that are not used under normal respiratory action and necessarily air entering and leaving these unused cells during forced breathing produces for a short time abnormal sounds and may lead the examiner to erroneous conclusions. The entire chest, front and back, must be carefully ausculted, as tuberculosis of the lungs does not always begin in the apices.

Examination of the Sputum. Microscopic examination of the sputum should be made whatever the physical findings. Tubercle bacilli in the sputum is corroborative and may be found before the changes in the lung tissue make a physical examination positive. However, if physical examination renders the subject suspicious, repeated examinations of the sputum should be made for the bacilli. The bacilli do not appear in the sputum until the rupture of the tubercle, the characteristic lesion of tuberculosis.

SUMMARY.

Pain in the chest may or may not be a symptom of tuberculosis of the lungs. Usually there is no pain.

Loss of appetite is a suggestive early symptom.

Loss of weight appears early in the disease and demands careful consideration.

Increase in pulse rate possibly the earliest symptom.

Cough even of slight nature and not noticed by the patient is suggestive. Cough of any consequence lasting over a month or two in young adults is usually of tuberculous origin.

Hemorrhage from the lungs is usually a late evidence of the disease. May not occur at any time, even in fatal cases, but may be an early symptom. Free hemorrhage from the lungs means tuberculosis in 75 per cent to 80 per cent of cases.

Digestive symptoms occur late as a rule. The skin and conjunctiva reactions to tuberculin are of no value in adults. In children before the age of five either reaction is valuable. It is questionable if it is ever necessary to use the conjunctiva for the test.

Blood pressure is usually low.

THE TREATMENT OF TUBERCULOSIS.

In discussing the treatment of tuberculosis I shall confine my remarks more particularly to that form of the disease limited to the lungs and contiguous structures.

A short paper on this subject must necessarily touch the essentials and the latest consensus of opinion, hence I shall not mention before a learned body of medical men

what the intelligent laity already have knowledge of.

The disease for purposes of convenience is divided into three stages: Incipient, moderately advanced and advanced, and the treatment and management of each stage is modified necessarily to meet the conditions. In the incipient stage our energies are directed toward the patient himself. In the moderately advanced stage, to both the patient and those who come in contact with him, and in the advanced stage, to those who have the care of the patient. I do not mean that the patient is neglected in any respect in these latter stages, but that effort is more directed to prophylactic and preventive measures, hospital and sanatoria treatment.

Climate. We recognize climate as having a beneficial influence in all stages of the disease but more especially in early cases; the catarrhal type of the disease by reasonably high altitude and dry atmosphere; the fibroid type by a warmer atmosphere and lower altitude. Climate is only measurably beneficial and the disease is better controlled where abundant fresh air, sunshine and wholesome food is readily and easily obtained combined with a maximum of clear days and sunshine. Another very important point in considering climate should be the environment and congeniality of surroundings, that is, friends and those interested in the patient and the amount of his resources should be taken into serious consideration. A rich patient may buy attention and interest, a poor one cannot. The poor tubercular had better be at home with family and friends.

Fresh Air. Fresh air and plenty of it day and night. Many and various devices are obtainable or can be constructed to surround the patient constantly with this essential, whether he is up and about or confined to bed. With these you are all familiar.

Rest. Rest is perhaps the most important requisite to satisfactory results; especially if the patient has an elevation of temperature. Every tuberculosis patient should be in bed or in a reclining chair, couch or hammock when fever is present. During the morning hours when no fever is present patient may be up and dressed and may take a restricted amount of exercise. Rest and the recumbent posture is essential and probably the best procedure in case of hemorrhage. I question the potency of drugs arresting hemorrhage from the lungs. Morphia or codia is the only drug worth consideration and may be used to advantage.

Sunshine. Exposure of the tubercular to the direct rays of the sun for a considerable length of time has proven detrimental. Better results have accrued from sitting or reclining in the shade on clear days.

Food. The food question in these patients resolves itself into the use of pure, fresh and wholesome products, easily obtained, easily digested and assimilated. The foods that require a minimum amount of digestive and assimilative energy and leaves a minimum amount of residue are the foods of choice. Any and all foods should be served attractively and with care for cleanliness. Consult the patient's wishes, cater to his palate and gustatory desires. When the diet is restricted milk and eggs are the most easily administered and most easily digested. Purity of the milk and freshness of the eggs of course are essential. Mixed diet appeals to some, restricted to others. Individualize and give such food as each case can take care of and digest easily. Baths and the proper amount of bodily cleanliness must not be overlooked. Mental and physical relaxation through various entertainments and congenial social intercourse produce a tranquil state of mind and body.

Sera, Vaccines, Bacterius. The question of the usefulness of sera, vaccines and bacterius in pulmonary tuberculosis is subjudice and I approach it with trepidation. Many observers report good results, others question it. These adjuncts are usually employed in sanatoria where the time-tried fresh air and good food is used and it is

difficult to attribute the results obtained to one or the other. I must admit my skepticism of the usefulness of these agents *per se* in pulmonary tuberculosis. In bone, joint and glandular tuberculosis their administration meets with favor.

Drugs. Drugs are useful but must be used with discrimination. You will recognize their limitations as I mention them: Belladonna, atropine, aromatic sulphuric acid for night sweats. Creosote, if tolerated by the stomach, for irritating cough. Morphia, codia or heroin for cough and to produce sleep, but caution is urged in the use of these latter or any preparation of opium. In the tuberculosis subject the gastric and intestinal secretions are loosened, hence digestive agents may be used with benefit. Hydrochloric acid, the bitter tonics, nux vomica, gentian and calumba. For constipation mild laxatives, as cascara sagrada, olive oil, aloes, etc. Patients on restricted milk and egg diet often require more active measures as castor oil, calomel or salines. For diarrhea bismuth offers the best results. Arsenic as a reconstructive agent is employed for a short period with good results.

I have merely touched the surface of the subject of the treatment of tuberculosis and I hope the discussion will elucidate any contending point.

I will mention in closing that the production of artificial pneumothorax with nitrogen gas is meeting with favor with some observers.

RENAL TUBERCULOSIS.*

J. KNOX SIMPSON, M. D.,
Gynecologist to St. Luke's Hospital.
Jacksonville, Fla.

Tuberculosis of the kidney occurs as two distinct types: Acute miliary tuberculosis, a part of a general widespread infection; and chronic ulcerative tuberculosis. It is the latter type which is amenable to treatment, and with which this paper has to deal. The kidney is the organ of the urinary system which is primarily involved in 70 to 90 per cent of the cases of tuberculosis of this system; and the route of the infection is by the blood stream, as a direct hematogenous infection, in about the same percentage of instances. The bacilli get into the circulation either by passing through, and not involving the bodily filters, as the tonsils, and lining of the intestinal tract; or from some other focus in the body.

The kidneys are involved in 5 per cent of all cases of early tuberculosis, and in about 25 per cent of the late cases, so the disease is not a rare one. Fortunately it begins as a unilateral infection in at least 90 per cent of the cases, and remains so over a period of months, giving ample time for an accurate diagnosis and proper treatment before it becomes bilateral.

Braasch found that 86 per cent of the cases coming to the Mayo clinic for surgical treatment were unilateral, and that the cases showing bilateral involvement, had had symptoms of the disease over a period of from two to ten years.

The complete diagnosis of the disease is necessarily made in two installments, and with the proper amount of care can be made relatively early and easily. The first installment is made by the man on the firing line—the man in general practice. He is the man upon whose shoulders rests the burden of the initial classification of cases; and he can usually, by the proper use of the facilities at his command, say whether a case is or is not one of tuberculosis of the urinary tract. When he does this and does it early in the course of the disease, he has done his work well.

The second installment in the diagnosis relates to the accurate location of the pathology, its extent, and its amenability to surgical treatment; and is necessarily made by one who is equipped to do accurate work with the cystoscope, functional tests, laboratory methods, etc. These methods have

*Read before the Duval County Medical Society at Jacksonville, June, 1913.

revolutionized renal surgery, and the data obtained by their use is absolutely indispensable to the operating surgeon.

Whether or not, however, the patient receives the benefit of these accurate diagnostic procedures, is wholly dependent on whether or not his family physician makes the first installment of the diagnosis properly; and having so done, is cognizant of his responsibility in the case. In summing up his diagnostic evidence from the history of the case, the physical examination, and the examination of the urine, the following points should be kept in mind:

1. First and most important is the recognition of the fact that the bladder is the mouthpiece of the whole urinary apparatus; and through it complaints from other parts of the apparatus are usually first made known to the examinee, and hence to the examinor. Cystitis, without some qualifying clause relative to its cause, is not a diagnosis, and should never be given nor accepted as such. It is no more of a clinical entity than indigestion.

2. The first symptoms complained of by the patient with tuberculosis of the kidney, in 80 per cent of the cases, are those of bladder irritability—frequency and urgency of urination, especially nocturnal. When these symptoms come on insidiously, and progressively increase in severity in young adults, it should at once throw suspicion on the kidney as the seat, and tuberculosis as the type of the existing pathology.

3. About 20 per cent of the cases of renal tuberculosis in males show some demonstrable tuberculous involvement of either the epididymis, testicle, prostate, or seminal vesicles.

4. Palpation of the kidneys is unsatisfactory and often misleading, due to the fact that if an enlarged and tender kidney is found, it is difficult to say whether it is the diseased organ, or the normal organ, secondarily hypertrophied and congested from the increased demands upon it consequent upon the destruction of its fellow.

5. Fist percussion over the costo-vertebral angle is highly recommended by Murphy as a differential diagnostic sign, but I have not been able to obtain the happy results with it which he describes.

6. Urine examination gives us the most positive evidence in the construction of our diagnosis, and should be most frequently and painstakingly made, with special reference to the following points:

(*a*) The quantity gradually increases in amount up to a definite polyuria as the case progresses.

(*b*) The specific gravity is persistently low.

(*c*) The color is light amber to colorless unless tinged by blood, and if there is much destruction of kidney substance, as in bilateral disease, it usually is as colorless as water, and has scattered through it the typical white flecks of pus.

(*d*) Frank hematuria occurs as the first symptom of the disease in only about 6 per cent of the cases, but microscopic blood may be found in a large number of the cases showing pus.

(*e*) Microscopic examination of the urine from a case of tuberculosis of the kidney will practically always show pus; will usually show a few red blood corpuscles, and will, in 75 per cent of the cases, show tubercle bacilli. It should be frequently and thoroughly examined for these constituents.

(*f*) Care in the taking of the specimen can not be too strongly emphasized, as voided urine containing leucorrheal discharge, menstrual blood, smegma bacilli, etc., is absolutely worthless from the standpoint of differential microscopic diagnosis.

Attention to the above points takes up considerably more time than the asking of a few questions, and the giving of a prescription for urotropin; but the reward in satisfaction to the patient, and to the physician, is well worth the time spent. When a positive, or even a tentative diagnosis of tuberculosis of the urinary apparatus is made, the

case should at once be given the benefit of a thorough cystoscopic examination for the accurate determination of:

(*a*) The source and distribution of the pathology; (*b*) the amount of destruction to the organs which the pathology has caused; (*c*) the advisability of their surgical removal, and the capability of the remaining organs of sustaining life in such event. An accurate knowledge of the above facts is absolutely essential to the proper handling of the case, and that knowledge can be obtained by the use of the cystoscope, ureteral catheters, the renal functional tests, and the clinical laboratory, including guinea pig inoculation. The tecnique of these procedures is manifestly out of place in a paper of this scope, so it is omitted.

Though an occasional case of renal tuberculosis is cured medically, it is essentially a surgical disease. That surgery offers the best hope of cure is now the consensus of opinion; based on compiled statistics showing a 3 per cent operative mortality with 75 per cent permanent cures, against 90 per cent mortality in cases not operated upon.

Nature's aim in the treatment of tuberculosis in any part of the body is to remove it. She does this by completely surrounding the focus of infection with fibrous tissue. Her efforts along this line in renal tuberculosis are occasionally found in what has been called an auto-nephrectomy, where she has caused a fibrous obliteration of the ureter, and a consequent cutting off of the escape of tuberculous debris from a dead kidney into the bladder.

The tuberculous kidney, due to its intimate anatomical relations with the bladder, and through the bladder with its fellow, and with the other organs of the urinary system, offers to nature a very arduous task in preventing the spread of the infection. At the same time, however, due to these same anatomical relations, and due to nature's generosity in giving us a duplicate organ, it offers to the surgeon peculiar advantages in its radical removal, which can not be found in tuberculosis elsewhere in the body. So that nephrectomy is now the accepted treatment for renal tuberculosis, as soon as a definite diagnosis is made. It is a relatively safe, sound, and conservative procedure; leaves behind it little permanent morbidity; and has a large percentage of permanent cures to its credit.

331 *St. James Building.*

LABORATORY DIAGNOSIS OF TUBERCULOSIS.

HENRY HANSON, M. D.,
Senior Bacteriologist, State Board of Health,
Jacksonville, Fla.

In discussing a topic like the laboratory diagnosis of tuberculosis, one naturally thinks, first, of the examination of sputum for tubercle bacilli.

This has been regarded by practitioners and laboratory men as one of the most reliable tests for the presence or absence of the disease.

It would seem, that the matter of making examinations of sputum, to determine the absence or presence of tubercle bacilli, is such a simple procedure that no elaborate discussion should be necessary.

In the work of a public health laboratory, certain matters occur at what, one might say, regular and frequent intervals, which impress the laboratory man with the need of giving much thought to the simple procedure of gathering sputum and sending it to the laboratory for examination.

It is a common occurrence, in the central laboratory of the State Board of Health of Florida, to receive specimens for sputum examination which do not contain material from the lungs or bronchial tubes. I might state here that our custom in sending out containers for submitting sputa for examination is fairly well known to the practitioners in the State, but for those who are probably not sufficiently informed on this, our sputum bottles contain approximately 5cc. of 5 per cent lysol solution.

The disinfectant is sent out as a safeguard against contamination by those who have to handle the specimens, and also in case of accident in the mails.

Many of the bottles which are returned, and supposed to contain sputa, fail to show that there is any sputum in the bottle, and naturally these specimens are negative.

In order to make the sputum examination satisfactory, it is necessary for the physician to instruct his patient that a simple expectoration of some of the salivary secretions into the specimen bottle is not satisfactory for the test. The patient should be instructed that the best sample is that coughed up the first thing in the morning, and that he should avoid, as much as possible, simply spitting in saliva or some of the nasal secretions.

Ravenel stated at the meeting of the Section on Hygiene and Preventive Medicine of the American Medical Association in Minneapolis in 1912, that the nature of the samples of sputa submitted for examination in public health laboratories was such that they were more of a detriment than a help in the early diagnosis of tuberculosis.

A person who has spent some time in the laboratory where this work is done, can readily see the logic in a statement of this kind.

There are, however, a certain number of cases where the tubercle bacilli may be found rather early, and where the positive finding, in the public health laboratories, furnishes information on the basis of which a few will be enabled to take up the fight against the disease and get well.

As is well known, most of the diagnoses, which are made in such laboratories, form positive findings of the sputum, are usually cases too far advanced to offer any hope of a cure.

Knowing these things, it is necessary for the physician to resort to some other method of making a diagnosis, and to depend upon the physical findings more than upon the negative results of the sputum examination in the laboratory.

In reviewing our results for the past four years, in the laboratory of the State Board of Health of Florida, we find that of the total number of sputum examinations made, 24.74 per cent were positive; which means that one out of every four cases suspected of tuberculosis showed the tubercle bacillus on examination of the sputum. The percentage varies from 22.4 per cent in 1911 to 27.5 per cent in 1913.

One would scarcely think that all cases suffering with tuberculosis would present themselves so late that one in every four would show tubercle bacilli in the sputum. We know that patients have had the disease for two years without finding the tubercle bacilli in the sputum, and yet, when we consider the nature of the specimens submitted, we feel certain that a large number, which probably do have tubercle bacilli in their sputum, are negative because of improper samples.

The various other tests, namely, the tuberculins, do not strictly come under the head of laboratory diagnosis of tuberculosis from the standpoint of the public health laboratory, and I shall not go into the theory of these in the present discussion.

The main object of this paper is to emphasize the fact that not enough attention is given to the proper collection of sputum for laboratory diagnosis, and secondly, that in the vast majority of cases in general practice enough time is not spent in making a careful systematic physical examination of the patient. The high percentage of positive findings from our laboratory, in spite of the nature of a great many of the specimens, is almost conclusive evidence of this point.

PROPAGANDA FOR REFORM

ANGIER'S THROAT TABLETS.—These tablets are stated to be composed essentially of elm bark and petroleum and yet are claimed to "promote appetite and aid digestion."

The A. M. A. Chemical Laboratory reports the tablets to contain about 12 per cent. of soft yellow petrolatum, like that found in Angier's Emulsion. (*Jour. A. M. A.*, Sept. 12, 1914, p. 964.)

ANGIER'S EMULSION.—A report of the Council on Pharmacy and Chemistry points out that when Angier's Emulsion, Angier Chemical Co., Boston, Mass., was first put on the market it was advertised as a "food-medicine" and an "Ideal Substitute for Cod Liver Oil." Although the manufacturers now advertise this product as a laxative and state it to be "purely mechanical in its action," they still mingle with the new ones the old claims of "tonic and reconstructive merits" and thus attempt to perpetuate the erroneous belief that the preparation has nutritive value. As to the identity of the petroleum product contained in the preparation, regarding which the advertising circulars make contradictory statements, the A. M. A. Chemical Laboratory reports that this has all the properties of soft yellow petrolatum. (*Jour. A. M. A.*, Sept. 12, 1914, p. 962.)

ANTISEPTIC ACTION OF HEXAMETHYLENAMIN.—The former opinion that hexamethylenamin possesses antiseptic action independently of the liberation of formaldehyd, was an assumption not founded on reliable experimental evidence. The recent investigations of Burnam, Hanzlik and others have shown that its action as an antiseptic depends on the decomposition into formaldehyde and ammonia which occurs only in an acid medium. (*Jour. A. M. A.*, Sept. 12, 1914, p. 962.)

DIGALEN OMMITTED FROM N. N. R.—In view of increased extravagance regarding the claims made for Digalen by the Hoffmann-LaRoche Chemical Works, the Council on Pharmacy and Chemistry decided to investigate the present eligibility of Digalen. Examination demonstrated that the asserted presence in Digalen of "amorphous digitoxin" was not substantiated by evidence, that Digalen and Digalen Tablets were not constant in composition and action and that the claim that Digalen causes less gastric disturbances than digitoxin was unfounded. While the manufacturer promised to hold the claim that Digalen contained "amorphous digitoxin" in abeyance, they refused to concede the variable composition of Digalen and reasserted that Digalen was less liable to cause gastric irritation than other digitalis preparations. In view of the overwhelming evidence that Digalen is variable in action and in composition and that it produces the same gastric disturbances as other digitalis preparations, the Council voted that Digalen and Digalen Tablets be omitted from N. N. R. (*Jour. A. M. A.*, Sept. 5, 1914, p. 881.)

DOSE OF DIPHTHERIA ANTITOXIN.—While 3,000 units, the dose given in the Pharmacopoeia, probably is a sufficient initial dose in many cases, this quantity is not enough to satisfy the factor of safety. There is a growing opinion that no case of diphtheria should receive less than 10,000 units as the initial dose. (*Jour. A. M. A.*, Sept. 5, 1914, p. 873.)

LIQUID SOAP.—The following economical formula has been proposed. It may be flavored and colored to suit: Sodium hydroxid, 55 gms.; potassium hydroxid, 65 gms.; cottonseed oil, 800 c. c., alcohol, 500 c. c., and water to make 5,000 c. c. (*Jour. A. M. A.*, Sept. 26, 1914, p. 1129.)

PERTUSSIS VACCINE.—The Bordet Gengou bacillus is recognized as the cause of whooping cough and a vaccine prepared from it is used with success, although it is the general experience that when a child is already in the stage of incubation, the vaccine will not prevent the development of the disease. (*Jour. A. M. A.*, Aug. 29, 1914, p. 796.)

POISONING BY BORIC ACID DRESSING.—While wet boric acid dressings are harmless, this is not true of dry, powdered or crystallized boric acid. Alarming symptoms resulted from the application of dry boric

acid to wounds caused by a burn. (*Jour. A. M. A.*, Aug. 15, 1914, p. 593.)

PoDoLax.—A report from the A. M. A. Chemical Laboratory shows that PoDoLax, claimed to be "Podophyllin with the Gripe taken out," is a phenolphthalein nostrum. PoDoLax is being extensively advertised by the E. E. Sutherland Medicine Company of Paducah, Ky. From the analysis made, it appears that PoDoLax is an aromatized syrup, containing phenolphthalein in suspension and fortified by the addition of an extract of senna. Its laxative action is due chiefly to the phenolphthalein of which each dose contains about 1.8 grain. Podophyllin was not found to be present. (*Jour. A. M. A.*, Aug. 15, 1914, p. 595.)

Radium in Cancer.—Radium can be used successfully to destroy growths on the surface whose entire extent can be exposed to its energy. Extensive growths involving deep structures and disseminated growths are beyond its control, and there is no reason to believe that they will ever be brought within its control. The effects and the liminations of radium in the treatment of cancer are the same as those of the Roentgen ray. (*Jour. A. M. A.*, Aug. 29, 1914, p. 787.)

Sanatogen.—Testimonials for Sanatogen are published which show good results in cerebral concussion, alcoholic gastritis, anemia, etc. The patient is given a chance to recover by rest, a proper diet and Sanatogen—and the recovery is attributed to Sanatogen. Based on some biological experiments the exploiters of Sanatogen assert that "Sanatogen acts as a strong stimulus as far as the recuperative powers of the blood are concerned." These experiments were repeated by Professor A. J. Carlson, of the University of Chicago, using Sanatogen, casein, casein and glycerophosphates, milk and crackers and milk. Prof. Carlson's experiments show that the effects produced by Sanatogen are not different from those obtained when casein, casein and glycerophosphates, milk and crackers and milk are used. (*Jour. A. M. A.*, Sept. 26, 1914, p. 1127.)

Scarlatina Vaccine. — The so-called scarlatina vaccine is said to consist of killed streptococci from scarlet fever cases. While the infectious agent of scarlet fever has not been established, the close association of streptococcus with scarlet fever has been considered a warrant for the use of antistreptococcus serum, and various vaccines prepared from this organism, in the treatment of scarlet fever. (*Jour. A. M. A.*, Aug. 29, 1914, p. 796.)

Shortage of Drugs.—In view of possible drug shortage, physicians should bear in mind that many proprietary foreign preparations are made and sold in the United States under their descriptive names, thus dionin as ethyl morphin hydrochlorid, urotropin as hexamethylenamin and Diuretin as theobromin sodium salicylate. (*Jour. A. M. A.*, Aug. 22, 1914, p. 692.)

Significance of the Word "Lutein."—The word "Lutein" has long been applied in physiologic chemistry to designate a group of fat-coloring matters which occur in nature and which have more recently also been given the general designation of lipochromes. As a rule the use of the term has been restricted to the yellow coloring-matter which develops in the ovarian structures. It is unfortunate that lately various preparations of dessicated corpora lutea from animals are being sold as lutein. (*Jour. A. M. A.*, Sept. 29, 1914, p. 1119.)

Sodium Versus Potassium Salts.—The probable shortage of potassium salts due to the war suggests that sodium salts may in most cases be substituted without disadvantage. In general potassium salts have no marked superiority over the corresponding sodium salts. While the potassium compounds are said to be more active and to possess a more diuretic effect, the sodium salts are less depressing to the heart and in some instances less disagreeable to the taste. Sodium iodide, sodium bromide, sodium acetate, sodium citrate, etc., are just as effec-

tive as the corresponding potassium salts. (*Jour. A. M. A.*, Sept. 19, 1914, p. 1034.)

THE RADIO-ACTIVITY OF SARATOGA SPRINGS WATER.—An estimation of the radio-activity of Saratoga Springs Water, made by the United States Bureau of Mines, shows that the activity is due in the main to radium emanation, which is therefore readily lost, and not to dissolved radium salts. The total activity of the waters is rather low, that of the Crystal Rock spring, though not exceptional, is considerably above the average. The activity of different springs varies widely, some being more than twenty times as active as others. A similar variability is known to exist at Hot Springs, Ark., but only the vaguest information has been made public by our government. (*Jour. A. M. A.*, Aug. 29, 1914, p. 788 and 795.)

VACCINATION AGAINST SMALLPOX AND TYPHOID.—In view of the war, a general revaccination of the population of Paris has been ordered and huge quantities of anti-typhoid serum have been prepared. (*Jour. A. M. A.*, Sept. 5, 1914, p. 873.)

VACCINE VIRUS NOT CONTAMINATED.—A study of cases shows that vaccinal tetanus is not due to contaminated vaccine virus. Further, since the law regulating the sale of biologic products in 1902 went into effect there have been examined in the Hygienic Laboratory of the U. S. Public Health Service over 1,500,000 doses of vaccine virus without a single specimen having been found to contain tetanus spores. Also, experiments indicate that tetanus will not be produced even if the virus used contains tetanus spores. Most cases of vaccinal tetanus are due to infection after vaccination. (*Jour. A. M. A.*, Sept. 19, 1914, p. 1032.)

VALUE OF TALCUM POWDERS.—The action of talcum powders on the skin depends on their protective and dehydrating properties. On the other hand they tend to form crusts and pastes, due to mixture of the powder with sweat or other secretions. There is doubt if the boric acid in talcum powders can exert any antiseptic action. The action of the salicylated talcum powder of the National Formulary, though containing 10 per cent. of boric acid, depends on its salicylic acid. Commercial talcum powders contain small amounts of various antiseptics and perfuming agents and have little value from a therapeutic point of view. (*Jour. A. M. A.*, Sept. 26, 1914, p. 1129.)

VERACOLATE, MARCY AND CO.—Veracolate is a proprietary said to consist of the salts of the bile acids, sodium glycocholate and sodium taurocholate, with cascara and phenolphthalein. While bile salts are said to increase the secretion of bile, it is doubtful whether this increase in the secretion of bile is of value in the treatment of gall-bladder affections. There is no occasion for the use of bile salts combined with fixed quantities of cathartics, which should be added only when they are needed. The advertising claims for Veracolate show a tendency to extravagant statements. (*Jour. A. M. A.*, Aug. 1, 1914, p. 420.)

THE MODERN WARFARE AGAINST TUBERCULOSIS AS A DISEASE OF THE MASSES.—In some sections of the country as many as fifty per cent. of the children of parents attending tuberculosis dispensaries have been found on examination to be afflicted with tuberculosis of various types. We know also that children can also contract tuberculosis from others than their parents, as nurses, tuberculous relatives, boarders and strangers to the household, and we furthermore know that nearly ten per cent. of the children afflicted with tuberculosis have contracted the disease by the ingestion of tuberculous milk because the bovine type of the bacillus has been found in that percentage. We are as yet uncertain whether or not the bovine type of the bacillus of tuberculosis is transformed in later years into the human type by its new environment, but we do not worry about this uncertainty; we teach, preach and practice the prevention of tuberculosis in cattle by the enforcement of the tuberculin test and by weeding out the tuberculous cattle and prohibiting the sale of tuberculous meat and milk.—S. Adolphus Knopf, M. D., in *New York Medical Journal.*

The Journal of the Florida Medical Association

Owned and published by the Florida Medical Association.

Published monthly at St. Augustine and Jacksonville. Price, $1.00 per year; 15 cents per single number.

Address Journal of the Florida Medical Association, St. Augustine, Florida, or 334 St. James Building, Jacksonville, Fla., U. S. A.

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THE TUBERCULOSIS PROBLEM.

To put the tuberculosis problem on a commercial basis may seem sordid, but since "Health is purchasable," a few figures may be considered.

Authorities value the life of an individual, from 15 to 40 years of age, at $6,000 or $8,000. This is the period of life of greatest economic production and the period of greatest economic loss in case of death. This is the period of life also when tuberculosis claims its majority. Two hundred thousand people die annually in the United States from this disease, entailing an economic loss, aside from the suffering, sorrow and sacrifice from the masses, amounting to the stupendous sum of $1,600,000,000.

It is estimated that, if a small part of this vast sum could be properly directed, each year, toward the prevention of the disease and the care and maintenance of those afflicted within a generation tuberculosis would be a rare and infrequent disease. Within the past decade the mortality from tuberculosis has decreased 18 per cent, due to the activities of social and civic organizations with the co-operation of health officials. Education of the public has been the keynote of action. If the next ten years is to bring the results of the past ten effort must not lag. Interest in the problem is essential and the more interest, the greater results. The community interest idea is the unit—the center—from which the larger groups of humanity receive inspiration for greater endeavor.

The health officer, city, county, state, of the proper kind, and there are many of them, if given substantial support, financial and legislative, will conduct the most fruitful campaign because of his knowledge of the causes and communicability of the disease and the hygienic and sanitary problems evolved in its eradication.

Every physician in the land has a duty to perform, and, owes it to the community in which he lives, in dealing with this disease

as with every other, and to him especially will the public look for a diagnosis in the early stages when the chances for recovery are greatest.

MEDICAL JOURNAL ADVERTISING.

THE JOURNAL wishes to again call the attention of our readers to the advertising columns of our publication. It will be noticed that our advertising patronage from outside the state is increasing from month to month. A number of these advertising contracts have been secured for us by the Co-Operative Medical Advertising Bureau of Chicago. This is not a commercial advertising agency run for profit but has been inaugurated by the Americal Medical Association for the purpose of assisting state medical journals to secure contracts and to keep their advertising pages *clean*. The only requirements this bureau calls for is that all journals receiving their support accept only advertisements complying with the rules of the Council on Pharmacy and Chemistry of the A. M. A. THE JOURNAL defined its attitude in this respect in its initial number and was therefore at once eligible for and received the support of this Bureau.

However, it is going to be necessary to convince the advertiser that he is spending his money with us to advantage. To simply know that an advertisement is being read helps not a little and a request for the advertisers' literature or for a sample of their products costs but a few moments' time and a postage stamp. We therefore urge our readers to look carefully over our advertising pages and let it be known that we are a live profession and have needs to be filled. If the members of the Florida Medical Association want a journal—not for a few months—but as a permanent institution, they must support those that make the publication of such a journal as our own a practical proposition. We urge every reader, therefore, to accept from the advertiser what he offers without charge for the purpose of establishing the merits of his products, and then in every instance we further urge that our advertising patrons be given first consideration whenever it is within good business economics to do so.

ERRATUM.

Through a typographical error the degree of F. R. C. S., instead of F. A. C. S., was placed after the names of two of the collaborators in the October number of THE JOURNAL.

THE AMERICAN PUBLIC HEALTH ASSOCIATION.

As previously stated in the columns of THE JOURNAL the American Public Health Association will hold its forty-second annual meeting in Jacksonville from November 30th to December 4th. In connection with the meeting will occur a Southern Health Exhibition, the arrangement of which has been completed after untiring effort on the part of the committee having this exhibit in charge.

In addition to this exhibit the meeting will include a joint session with The National Mouth Hygiene Association.

The following papers comprise the scientific program:

The Negro Health Problem. L. C. Allen, M. D., Hoschton, Ga.

Housing Conditions of the Negro Population with Reference to Public Health. Ralston Lattimore, M. D., Savannah, Ga.

The Negro as a Problem in Public Medical Charity. Laurence Lee, M. D., Savannah, Ga.

The Influence of a Large Colored Population on the General Death Rate. Dr. Ernest C. Levy, Health Officer, Richmond, Va.

Syphilis Among Insane Negroes. S. S. Hindman, M. D., Georgia State Sanatorium, Milledgeville, Ga.

The History and Development of Industrial Hygiene with Special Reference to the United States. George M. Kober, M. D., Washington, D. C.

The Prevalence of Occupational Factors in Disease and Suggestions for their Elimination. E. R. Hayhurst, Chief, Survey of Occupational Diseases, State Board of Health, Columbus, Ohio.

Industrial Insurance. John B. Andrews, Ph. D., Secretary American Association of Labor Legislation, New York City.

The Federal Meat Inspection Service and Sanitation of Packing Houses under Its Supervision. George H. Shaw, Sanitary Engineer, United States Department of Agriculture, Bureau of Animal Industry.

Smallpox Epidemic at Niagara Falls. Linsley R. Williams, M. D., Deputy Commissioner of Health, State Department of Health, New York.

Educational Work on Sanitary Food Values in New York City. Donald B. Armstrong, M. D., Director, Department of Social Welfare, New York, Association for Improving the Condition of the Poor.

Registration of Communicable Diseases with Special Reference to Out-of-Town Cases. F. M. Meader, M. D., Director, Division of Communicable Diseases, New York State Department of Health, Albany, New York.

The Relationship of the Visiting Nurse to the Public Health Campaign. Ella P. Crandall, Executive Secretary, The National Organization for Public Health Nursing, New York City.

Health and Economic Results of Rural Depopulation and Abnormal Increase of Cities. Peter H. Bryce, M. D., Chief Medical Officer, Department of the Interior, Canada.

Life Extension. Prof. Irving Fisher, Yale University.

Sickness Insurance and Its Relation to Public Health. B. S. Warren, M. D., Sanitary Advisor, United States Commission on Industrial Relations, Washington, D. C.

The Newspapers and Public Health. Dr. W. A. Evans, Chicago, Ill.

Health and Economic Results of Rural Depopulation and Abnormal Increase of Cities. Dr. Peter H. Bryce, Medical Officer, Department of Interior, Ottawa, Canada.

The Curse of Narcotism in America. Miss Jeannette Marks, New York City.

(Title to be announced.) Woods Hutchinson, M. D., New York City.

The Action of Certain Bacteria on the Nitrogenous Material of Sewages. E. G. Birge, Harvard University.

(*a*) Relative Stabilities in Polluted Waters Carrying Colloids. (*b*) Notes on the Practical Application of the "Saltpeter" Method for Determining the Strength of Sewages. A. Lederer, Sanitary District of Chicago.

The Use of the Cotton Disc Filter in Recording Sediment in Water. G. C. Whipple, Harvard University.

Examination of the Efficiency of Household or Domestic Filters. F. L. Rector, New York City.

The International Joint Commission's Investigation of Sewage Pollution of Boundary Waters. A. J. McLaughlin, International Joint Commission.

Chemical Disinfection of Excreta. W. Dreyfus, New York City.

Colon Bacilli and Streptococci and Their Significance in Milk. L. A. Rogers, Bureau of Animal Industry.

The Occurrence of Streptococci in the Milk of Healthy Animals. E. G. Hastings and J. M. Sherman, University of Wisconsin.

The Bacteriology of Ice Cream. H. D. Pease, S. C. Prescott and P. G. Heinemann.

The Sanitary Control of Shellfish Industries. C. L. Alsberg, Bureau of Chemistry.

The Fate of Bacteria in Frozen Meat held in Cold Storage and its Bearing on a Bacteriological Standard for Condemnation. J. Weinzirl, University of Washington.

Bacilli of the Diphtheria Group Isolated from Carriers and Convalescents. A. Wadsworth, M. B. Kirkbride and Ruth Gilbert, New York State Department of Health.

The Microscopic Examination of Feces for the Ova of Parasitic Worms with a Key

for Their Determination. P. E. Garrison, Thompson Pellagra Commission.

The Use of Inhibiting Dyes in the Isolation of Typhoid and Para-typhoid Bacilli. C. Krumwiede, Jr., New York City Department of Health.

The Use of Complement Fixation Reactions in a Public Health Diagnostic Laboratory. A. McNeil, New York City Department of Health.

The Laboratory as an Aid in the Diagnosis of Typhus Fever. J. F. Anderson, Hygienic Laboratory.

The Value of the Schick Test in Determining the Desirability of Immunization. W. H. Park, New York City Department of Health.

Best Time to Incubate Throat Culture. A. Gehrmann. Columbia Laboratory, Chicago.

The Typhoid Carrier Problem in Institutions, with Observations on the Widal Reaction, Following Administration of Typhoid Vaccine. E. M. Wade and O. McDaniel, Minnesota State Board of Health.

Wound and Skin Diphtheria. L. D. Bristol, University of North Dakota.

The Antagonism between the Diphtheria Bacillus and the Lactic Acid Producing Bacteria. Henry Albert, University of Iowa.

The Effects of Temperature Humidity and Air Movement upon Loss from a Moist Surface. E. B. Phelps, New York State Commission on Ventilation.

Results of the First Year's Experiments of the New York State Commission on Ventilation. C. E. A. Winslow, New York State Commission on Ventilation.

Bacteria and Dust Particles in Air. G. C. Whipple, Harvard University.

School Ventilation. D. D. Kimball, New York State Commission on Ventilation.

Methods of Bacterial Analysis. G. L. A. Ruehle, New York Agricultural Experiment Station.

Factory Ventilation. A. M. Feldman, New York City.

Municipal Health Officers and Venereal Diseases. Dr. W. A. Evans, Chicago.

The Marriage Certificate, A Deeply Rooted Social Problem. Dr. Oscar Dowling, President Louisiana State Board of Health.

An Investigation into the Relationship Between Flies and Diarrheal Diseases in Infants under One Year of Age in New York City. Philip S. Platt, M. A., Superintendent, Bureau of Public Health and Hygiene, New York Association for Improving the Condition of the Poor.

Rural Sanitation and Hookworm Disease. Dr. A. G. Fort, Georgia State Board of Health.

Some Observations on the Milk Situation. Prof. B. L. Arms, Galveston.

The Control of Yard Closets. Dr. Allen W. Freeman, State Board of Health, Virginia.

An Outbreak of Cowpox. Dr. A. J. Douglas, Health Officer, Winnipeg.

The Standardization of Public Health Work. Dr. W. S. Rankin, Secretary North Carolina State Board of Health.

The Value of a Credit Balance in Public Health Work. Dr. C. J. Hastings, Health Officer, Toronto.

Co-operation in Public Health Administration at La Salle, Peru, and Oglesby, Ill. Dr. G. F. Ruediger, Health Officer for above municipalities.

The Typhoid Carrier. Dr. Jessie B. Hudson, Director Clinical Laboratories, Clinton, Iowa.

Midwives, Their Influence on Early Infant Mortality. Dr. C. E. Terry, Health Officer, Jacksonville, Fla.

Practical Remedial Measures for the Betterment of the Hygienic Conditions of the Negroes. Dr. M. L. Graves, Galveston.

Cancer as a Public Health Problem. Curtis E. Lakeman, Executive Secretary, American Society for the Control of Cancer.

A Study of Methods of Sewage Disposal in Industrial and Rural Communities and their Possible Relation to the Spread of

Pellagra. Captain Jos. S. Siler, Medical Corps, U. S. A., Dr. Phillip E. Garrison, Passed Assistant Surgeon, U. S. Navy, Dr. Ward J. MacNeal, Assistant Director of the Department of Laboratories, New York City.

Water Supplies and Sewage Disposal. Dr. J. W. S. McCullough, Chief Health Officer, Ontario.

Experiments on Animals and Their Influence on Mortality. Dr. John H. Landis, Commissioner of Health, Cincinnati.

A Standard Certificate of Birth. Dr. W. A. Plecker, Registrar of Vital Statistics, Richmond, Va.

The Statistical Treatment of Non-Resident Deaths. Dr. Cressy L. Wilbur, Chief Division of Vital Statistics, Albany, N. Y.

How Shall We Treat Non-Resident Deaths? Mr. Henry Chalmers, M. A., New York State Division of Vital Statistics, Albany, N. Y.

Vital Statistics and the Physician. Mr. George H. Van Buren, Census Bureau, Washington, D. C.

The Importance of Autopsy Practice as a Basis for the Accurate Designation of the Causes of Death. Dr. Haven Emerson, Deputy Commissioner of Health, New York, N. Y.

On the Accuracy of American Cancer Statistics. Dr. F. L. Hoffman, Statistician, Prudential Insurance Company, Newark, N. J.

The Alleged Increase of Cancer. Prof. W. F. Wilcox, Cornell University, Ithaca, N. Y.

The Evidence from Life Tables. Mr. W. J. V. Deacon, State Registrar, Topeka, Kansas.

The Physical Characteristics of Garment Workers as Determined by the Examination of Three Thousand Subjects in New York City. Dr. J. W. Schereschewsky, Surgeon, United States Public Health Service, Washington, D. C.

Discussion of The Physical Characteristics of Garment Workers as Determined by the Examination of Three Thousand Subjects. Dr. Robert Olesen, United States Public Health Service, Washington, D. C.

Physical Examinations of Employees Engaged in the Manufacture of Portland Cement. Dr. G. E. Tucker, Riverside, California.

The Place of Physical Examinations in Public Health Administration. Dr. Sigismund S. Goldwater, Health Commissioner, New York, N. Y.

Is the Tuberculosis Death Rate Declining? Dr. Philip Jacobs, Assistant Secretary, National Association for Study and Prevention of Tuberculosis.

Graphic Methods in Vital Statistics. Mr. A. R. Burnet, Presbyterian Board of Home Missions, New York, N. Y.

Introduction Statistics of Diseases—Their Present Status and Purpose. Dr. J. W. Trask, Assistant Surgeon General, Washington, D. C.

A Statistical Study of Whooping Cough. Dr. Frederick Crum, Assistant Statistician, Prudential Insurance Company, Newark, N. J.

Typhoid Fever. Dr. John S. Fulton, Secretary, State Board of Health, Baltimore, Md.

The Sequelae of Typhoid Fever. Dr. L. I. Dublin, Statistician, Metropolitan Life Insurance Company, New York, N. Y.

Puerperal Septicemia. Dr. W. H. Guilfoy, Registrar of Records, New York City Board of Health, New York, N. Y.

Experiences with Refuse Disposal Works from the Point of View of Odors. Rudolph Hering, New York City.

Experiences with Refuse Collection and Disposal, with Reference to Odors. Samuel A. Greeley, Chicago, Ill.

Refuse Disposal in Southern Cities, with Particular Reference to Savannah, Ga., and Its New Refuse Incinerator. E. R. Conant, City Engineer, Savannah, Ga.

Recent Developments in Refuse Disposal Practice. Col. William F. Morse, New York City.

Report of the Committee on Refuse Collection and Disposal American Public Health Association. Samuel A. Greeley, Chairman.

City Waste Dumps. James W. Paxton, Washington, D. C.

Experience with Sewage Disposal Works with Reference to Odors. General Discussion led by the Committee on Sewerage and Sewage Disposal. George S. Webster, Philadelphia, Pa., Chairman.

The Use of Plant and Animal Life as a Measure of Stream Pollution. Prof. Stephen A. Forbes.

Sanitary Conditions of the Sangamon River. By Prof. Paul Hansen, Urbana, Ill.

The headquarters of the Association will be at the Seminole Hotel.

The following entertainment program has been arranged for the visitors:

December 1—Trip on the St. Johns river, with a buffet luncheon (or some other outing).

December 2—Assembly Ball for the members and their guests.

December 3—Musical Tea for the ladies, at the Country Club.

There will also be opportunities for side-trips, visits to neighboring orange groves, to Atlantic Beach, second only to Ormond Beach; to St. Augustine, only an hour distant, and to the famous Ostrich Farm, etc.

Everything points to the largest and most successful meeting in the history of this notable organization and it is admitted that the stimulus given Public Health work, especially in the south, will be far reaching.

FILTHY PAPER MONEY.

If we ask an Englishman what are some of the things which impress him in America, he is apt to reply with some choice remarks about our filthy paper money. This has happened to the writer several times. It would seem we have here a subject lately neglected and perhaps time-worn, but a very important one from a health point of view. Europeans do not carry a roll of vile bills and we certainly do not give them credit for being any more particular about matters of personal cleanliness than ourselves! What can be more unsanitary than a roll of filthy, old, sour paper money that has been in the most vile spots imaginable? New bills for that matter are not particularly sanitary when compared with the common metals. Silver is a good germ destroyer, with copper and gold not far behind. In the summer time and in the South this sour odor is easily demonstrated in any banker's bill drawer. Perhaps many will smile at this and say that we are going too far to question the kind of money we handle just so we get it honestly. However, chances of infection by this means do come to everyone. We may be receiving the honest germs of tuberculosis or the spirochaete pallida of syphillis! The writer has had to sterilize bills handed him by syphilitics with lesions in their mouths who would wet their fingers with their lips and count out paper bills. An old friend (dentist) who rebels at the thought, tells me that he sterilizes all the paper money he handles! A good dentist to employ! Under this heading might come playing cards which we have often seen dealt by untidy persons who would distribute germs by wetting their fingers with their saliva when dealing. If this is a time-worn subject all the more reason not to abandon it. The remedy is not entirely in the hands of the people, money not accepted by one person at a bank is given to some one who *will* take it. Orders from Washington to bankers to return all slightly soiled bills at government expense would assist greatly. Here is an example of where a National Bureau of Health would do much. Let us as physicians work for a National Bureau of Health and cleaner money.

F. J. WALTER, M. D.

Daytona, Fla.

Reviews from Current Literature

THE ABDOMINAL CUTANEOUS REFLEXES.

Smith, Richard E.: The Behavior of the Abdominal Cutaneous Reflexes in Acute Conditions Within the Abdomen and Pelvis. Surg., Gynec. and Obst., 1914, Vol. XIX, No. 4, p. 504.

The writer states that while the abdominal reflexes have been utilized by neurologists as a means of differential diagnosis but little has been said regarding them in connection with local abdominal conditions. The writer states: "that the testing of the reflexes is very simple, takes but a moment, and needs no apparatus—points of practical importance. Care is, however, necessary in order to obtain reliable results, a fact emphasized by various writers. The abdomen may be divided into quadrants, an upper and lower one on either side. I employ any kind of dull instrument, usually the blunt end of a pencil. If this fails, I sometimes use a pin drawn lightly over the skin. The strokes should be full, rather light, and not too swift. It is applied in an oblique direction, parallel with the line of the groin and the edge of the ribs. The first stroke is apt to give the strongest response; after that it usually weakens or is entirely lost, a point of importance when the reflexes are weak. One must be careful not to encroach upon territory supplied by another reflex. If the reflex is present, an almost simultaneous contraction of the oblique muscles or rectus (or both) takes place, which when marked will pull the umbilicus to the side that is being tested. When weak only a fleeting and slight depression of the wall is produced. One must see that the muscles are not willfully put on tension, as it may weaken or destroy the response. Again, if the stroke causes pain, a voluntary contraction is apt to take place on that side of the abdomen or body, which, however, distinctly follows the stroke, but this will not deceive one if he is on his guard. Movements of the fat must not be confused with muscle contraction, an easy source of error in some cases."

"The reflex is a very constant one in healthy young individuals, fully as much so as the tendon reflexes. Müller and Seidelmann, examining one thousand healthy young soldiers, found the cutaneous reflexes always present with but one exception."

Smith, summarizing Müller and Seidelmann's findings in neurological conditions, states: "that these reflexes fail or are markedly diminished on the affected side of the body in spinal and cerebral hemiplegias of various origin, and that this symptom persists even after the disappearance of the motor symptoms. They fail on both sides in multiple sclerosis, and this is an early symptom of great value. They are usually exaggerated in early cases of tabes, failing in the late cases or in those that show an anaesthesia of the skin of the abdomen. The reflexes are retained in patients with spastic paralysis until a late stage is reached, and is a point of differential diagnosis between this disease and multiple sclerosis. In all nervous diseases in which there is increased abdominal tension they are diminished or lacking. Hysteria does not abolish them, even when anaesthesia of the skin of the abdomen exists. They have been used also in the localization of spinal injuries."

He calls attention to the fact that Rolleston and Sicard noted marked diminution or absence of the reflex in over ninety per cent of cases of typhoid fever. In common with other observers he finds that the reflexes are abolished or disturbed in practically all cases of general peritonitis and other acute intra-abdominal inflammation; that in acute localized inflammatory conditions the reflex is usually lost in the quadrant in which the acute process is located. Therefore the reflex has a certain diagnostic value in appendicitis and other localized conditions. In seventy-five cases of acute appendicitis the lower right quadrant was involved in sixty-five. Of the ten not involved three were children, the others Smith regards as being

exceptions to the rule. The writer states that but little importance can be attached to the presence or absence of the reflex in children since in practically all conditions the reflexes are particularly acute in the young. He states: "that the extent to which the reflex is involved is significant. An involvement of the reflex of the right lower quadrant has always denoted a fairly well localized inflammatory process. With further involvement, that is, an absence of the reflex of the upper right or lower left quadrant, the inflammation may yet be fairly well circumscribed. But when all are involved we have almost invariably found a considerable extension from the original seat of trouble. In all severe extensions of the inflammatory process, the condition commonly designated as 'general peritonitis,' all the reflexes have invariably been absent."

He states that when the general symptoms of appendicitis were definite with little or no involvement of the right lower reflex, the reason therefor was usually apparent on opening the abdomen. In such cases there was no peritonitis, and but moderate trouble in the appendix.

He also found involvement of the local reflex in a large percentage of cases of acute cholecystitis, pelvic inflammatory disease, and perforated gastric ulcer.

In twelve cases of acute obstruction of the bowel the reflexes were apparently uninvolved, the tentative conclusion being that the presence of the reflex may be an important item in the differential diagnosis of this condition.

Smith's final conclusion is: "that the abdominal cutaneous reflex has a distinct, though limited, value in acute conditions within the abdomen and that, although perhaps not as valuable a sign as rigidity (or lack of it), when combined with other symptoms, it is of value in strengthening our diagnosis."

FRACTURE OF THE NECK OF THE FEMUR.

Whitman, Royal: A Critical Analysis of the Treatment of Fracture of the Neck of the Femur. Annals of Surgery, Oct., 1914, Vol. LX, No. 4, p. 485.

Whitman again calls attention to the splendid results obtained in the treatment of fractures of the femoral neck by the abduction method. He points out that in these cases, whether of complete or incomplete fracture, there is practically always a coxa vara deformity, due to the upward pull on the outer fragment by the gluteus medius and minimus. He states that since many fractures of the neck of the femur are incomplete or impacted, the immediate results are satisfactory, but that the resultant traumatic coxa vara always entails disability. The abduction method always restores the normal angle of the neck with the shaft of the femur, thus preventing shortening and deformity, and by placing tension on the internal inferior portion of the capsule produces at that point an efficient fascial splint which is of great value in maintaining accurate and constant approximation of the fragments and thus is a factor in early union.

Upward displacement is prevented by the engagement of the outer fragment beneath the acetabular rim, or by contact of the trochanter with the pelvis; the attitude of abduction also prevents "displacement by muscular action since the pelvi-trochanteric group is relaxed, while contraction of the iliopsoas and abductors tend to appose, rather than separate, the fragments."

The plaster spica, being an independent splint, allows the patient any desired change of posture, does away with the necessity for prolonged recumbant immobilization and necessity for elevation of the foot of the bed, as in the traction method, with its consequent dangers of hypostatic pneumonia and other congestions, and permits movement without pain. Cases treated by the abduction plaster method are often allowed a reclining wheel chair during the second week. This method is as efficacious and as

productive of excellent results in fracture of the upper third of the femoral shaft as in fracture of the neck.

Whitman describes the application of this method as follows: "The patient, usually anaesthetized, is lifted to a pelvic support, preferably furnished with a perineal bar for counter pressure, the extended limbs being supported by assistants. The assistant holding the uninjured limb abducts it to the normal limit in order that it may serve as a guide, and incidentally to fix the pelvis. The injured limb is first flexed and rotated sufficiently to disengaged soft parts that may be interposed between fragments. It is then completely extended, and the assistant, by direct manual traction, overcomes the shortening, as demonstrated by measurement and by the relation of the trochanter to Nelaton's line, at the same time correcting the outward rotation. Still maintaining steady traction, he then abducts the limb to correspond with its fellow, the operator meanwhile supporting the joint and lifting the thigh upward. The pelvis should now be level and the extended limbs in exact correspondence in every particular. A plaster spica is then applied from the axilla to the toes. This should be carefully adjusted about the pelvis and trochanter. It should completely cover the buttock and be heavily reinforced beneath the joint and thigh, that it may be unyielding to pressure and therefore effective as a posterior splint to hold the limb in its proper plane."

HERPES ZOSTER.

Althoff, D.: Treatment of Herpes Zoster. Therapeutic News, July, 1914.

Herpes zoster seems to be an acute general infection, of which the pain and the vesicles along nerves is probably only a local manifestation. The general health of these patients is usually more or less disturbed. Treatment should begin early and must be both general and local. Splendid results are obtained by giving internally urotropin and aspirin 10 grains each in half glass of water, followed by a cup of hot tea. Repeat 3 or 4 times a day. Locally thymol and carbolic acid 5 grains to vaseline one ounce makes a good impression.

DIPHTHERIA PROPHYLAXIS.

Schick, B.: The Diphtheriatoxin Skin Reaction as a Preliminary to the Prophylactic Injection of Diphtheria Antitoxin. M. m. W., Nov. 25, 1913.

The object of the prophylactic injection is to remedy an absence of antibodies in an exposed individual. Investigations have shown that many individuals possess antibodies without ever having had any symptoms of diphtheria.

In the new-born the percentage is 80, in adults 90, during childhood between 50 and 60 per cent. Prophylactic injections could be dispensed with, therefore, in a large number of exposed individuals if we had a simple method by which we could ascertain the presence or absence of antibodies.

Loewenstein, Michiels, and Schick have shown that the intracutaneous injection of minimal doses of diphtheriatoxin produces a specific skin reaction, which indicates that no antibodies are present.

Technic: A small hypodermic syringe is used with a thin needle that has a short point. It is inserted into the skin with its opening upward so that it is covered soon after its insertion. The small quantity of diphtheriatoxin to be injected is 1 ccm. of a dilution prepared by diluting to 1000, the quantity of toxin required to kill a guinea pig of 250 grm. weight. The reaction that takes place simulates a tuberculin reaction. In from 4 to 8 hours is noticed an increasing redness and infiltration reaching their maximum in 48 hours. This is a positive reaction. A negative result always indicates the presence of antibodies. A positive result is not of the same value, because some individuals, adults as well as children, occasionally present a reaction despite the presence of antibodies.

The importance of this test will be apparent if we consider the great number of

negative results, *i. e.*, persons having antibodies present in their blood and therefore requiring no prophylactic injection on exposure. Repeated investigations have given us the following figures:

Newborn, 80 per cent negative.

First year, 57 per cent negative.

Two to five years, 37 per cent negative.

Five to fifteen years, 50 per cent negative.

During a prolonged exposure, as in institutions, a person who has reacted negatively, should be tested out again in about four weeks.

DIPHTHERIA PROPHYLAXIS.

Kassowitz, Karl: Contribution on the Method of Diphtheria Prophylaxis. M. m. W., Sept. 15, 1914.

Injections of prophylactic doses of diphtheria serum should no longer be made indiscriminately to all persons exposed. All these should have the benefit of one or more cultural examinations. All positives should be given an intracutaneous diphtheriatoxin injection according to the method of Schick. A prophylactic diphtheria serum injection is required only by those reacting positively to Schick's toxin injection.

THE USE OF RADIUM.

Howard A. Kelly and Curtis F. Burnam: Radium in the Treatment of Uterine Hemorrhage and Fibroid Tumors. Journal A. M. A., Aug. 22, 1914. Vol. LXIII, pp. 622-628.

The authors precede the report of their cases by a review, with bibliography, of the development of ray therapy as applied to the conditions mentioned.

The cases which they report themselves are 39 in number and the authors divide them into the following four groups: Group one is the so-called myopathia-hemorrhagica class. The patients are adults, suffering from marked menorrhagia or metrorrhagia, and presenting no disease of the pelvic organs except perhaps a slight enlargement of the uterus. Group two includes most of the hemorrhages occurring in young girls. Group three includes cases of so-called polypoid endometritis. The fourth group is that of true uterine myomata.

Most of the technics previously devised for the treatment of these conditions endeavored to concentrate the maximum amount of the rays, either Roentgen-rays or rays emanating from radium, on the ovaries leaving the uterus more or less out of consideration. This technic has been based on the fact that these rays will destroy the primordial follicles of the ovary and it was hoped that the resulting sterility would have a secondary beneficial effect on the uterus.

It is well established, however, that both Roentgen and radium rays cause an obliterative endo-arteritis almost invariably in the field radiated. The authors believe that there is a specific and direct action of the rays on the uterus or fibroid itself and they believe that they can obtain this action independently of any action on the ovaries.

The technic used is filtration through glass, platinum, zinc and rubber. Such an apparatus, suitably shaped, is inserted directly into the uterine cavity. As a preliminary the patient is examined carefully under nitrous oxide anæsthesia and is curetted. The amounts used vary from 30 mg. to 560 mg. of radium element in the fibroid cases down to as low as 12 mg. in the young girl group. The time of application varies in these cases from one and one-half to forty-eight hours.

The results in these thirty-nine cases are as follows:

Group one, eight cases. All finally had a complete amenorrhea, which was the desired result. One patient required two exposures to radium, the others but one each.

Group two, five cases in young girls. Four of the patients have had normal regular periods since treatment. The fifth patient, who required a large amount of radium, has had complete amenorrhœa. But one exposure given in each case.

Group three, five cases. Amenorrhœa, the desired result, attained in four. The

fifth required subsequent hysterectomy. But one exposure in each case.

Group four, twenty-one cases. One case required subsequent hysterectomy. The others were all either entirely cured or greatly benefited. Complete amenorrhœa was obtained in sixteen cases. In eight cases the uterine tumor entirely disappeared. In twelve cases the tumors were markedly reduced in size.

As a result of these cases the authors conclude that radium offers a remarkable therapeutic agent for controlling uterine hemorrhage in the classes of cases cited. In fibroid therapy it often gives results equal to radical surgical procedures without the danger, pain, etc.

As compared with the Roentgen rays it is simpler of application, more rapid in action, and acts on the uterus with more intensity than it does on the ovaries. The authors insist that the application shall be made intra-uterine and that the fibroid itself shall receive the major radiation.

RECURRENT VOMITING.

Kerley, Charles Gilmore: One Hundred and Forty-one Cases of Recurrent Vomiting in Private Practice. Am. Journal Diseases of Children, Oct., 1914. Vol. VIII, p. 292.

The author refers to the fact that in his experience recurrent vomiting, in a vast majority of cases, occurs in the offspring of those who for two or more generations have not engaged in manual work but have followed professional or business occupations.

He finds this condition frequently associated with other forms of illness most notably bronchitis of a spasmodic type and recurrent colds. Not infrequently there existed a history of eczema, rheumatism, enuresis, occasionally asthma and habit tic. While relationship probably exists between recurrent vomiting and all these conditions it is of noteworthy interest that acetone in the urine was not found in any of them except where gastric symptoms existed. As a result of his observation on the effects of certain dietetic errors the author concludes that recurrent vomiting is largely due to defective oxidation or in giving food of high carbon content in excess of the powers of normal oxidation. He regards insufficient exercise as also a factor contributing to the defective oxidation. Recurrent vomiting and related conditions are observed more frequently in winter months than in summer, since then activity is lessened and perspiration is least.

In the interval management of these cases the author restricts the use of cow's milk, except skimmed milk scantily employed, butter, cream and sugar. One egg is allowed every third day and saccharin is largely employed as a sweetening agent. Highly energized foods such as red meat, poultry and fish are given scantily. Bodily exercise, both active and passive, warm baths and attention to the bowel function are essential to successful treatment. The intermittent use of salicylate of soda and the more or less constant use of bicarbonate of soda for months or years if needed constitute the essentials of medicinal treatment. For the acute vomiting attacks bicarbonate of soda is employed by mouth and rectum and magnesia as a laxative and antacid. Forcible attempts at feeding are not advised.

THE TONSILS.

Comroe, Julius H.: The Use and Abuse of the Tonsils. Journal A. M. A., Vol. LXIII, p. 1367.

The functions of the tonsils are detailed in a manner so forceful and complete as to convince the most skeptical of the value of these organs. In support of his statements the author cites numerous authorities thereby rendering his paper even more valuable than it otherwise might have proven. The lymphoid structure of the tonsils and a description of the physiology of lymphoid tissue in general furnish undeniable evidence of the protective functions of the tonsils. The mere enlargement of these organs in childhood is regarded as physiological, and since they are generators of lymphocytes and

leucocytes, which constantly exert a bactericidal action, the tonsils should be regarded as protective organs rather than as a menace to health and development.

The epithelium covering the tonsils is endowed with a special function which prevents the entrance to the interior of infectious bacteria. This defense against absorption is maintained as long as the integrity of the healthy epithelial covering of the tonsil is preserved. While infectious germs are frequently found in the tonsillar crypts of both healthy and sick individuals they probably are not causative of tonsillar inflammation since autoinfection is probably essential to follicular tonsillitis.

Other functions of the tonsils including those of internal secretion, lubrication, immunity and phonetics are referred to in convincing detail.

The author deplores the indiscriminate removal of tonsils and enumerates certain ills that not infrequently result from tonsillectomy. Three indications are mentioned justifying this operation: (1) When, owing to their increased size, they interfere with respiration and ogygenation of the blood; (2) when they are actually diseased beyond repair and (3) when they undoubtedly contribute to the production of disease.

The author concludes his able paper with the expression of his belief that the tonsils were designed for good and not evil, and that normal tonsils have physiologic, chemical and phonetic functions and should not be indiscriminately removed.

SPOROTRICHOSIS.

Sutton, Richard L.: Sporotrichosis in the Mississippi Basin. Journal A. M. A., Vol. LXIII, p. 1153.

In an article with six good illustrations Sutton calls attention to the fact that of the fifty-four cases of Sporotrichosis reported in this country, all of the patients resided in the so-called Mississippi River Basin. Owing to the fact that the disease is not often recognized by the profession, Sutton concludes that cutaneous Sporotrichosis is a comparatively common disorder in the middle west. In every suspected case a bacteriologic test should be made as early as possible, otherwise the employment of antiseptics may render the culture examinations negative. Familiarity with the characteristic symptoms of the infection make a mistake in diagnosis unlikely. The treatment used in the five cases reported by Sutton was local antiseptic dressing, and the internal administration of potassium iodid in increasing doses, the result was good in all of the cases.

SYPHILIS IN COLORED CANAL LABORERS.

Baetz, Walter G.: Syphilis in the Colored Canal Laborers, New York Medical Journal, Vol. C, p. 820.

A resume of 500 consecutive medical cases of syphilis in the negro in the medical wards of the Canal Zone hospital is the basis of a very interesting article by Baetz. Attention is called to the absence of tabes dorsalis, and the rarity of paresis. The author mentions the fact that lesions of the mucus membrane are not common among the negroes of the Canal Zone, that syphilis is a very common disease; 6 per cent of the hospital admissions being recognized syphilitics.

TRICHLORACETIC ACID TREATMENT OF LUPUS.

Heidingsfeld, M. L.: A New Method of Treatment of Lupus Vulgaris. Journal of the A. M. A., Vol. LXIII, p. 1352.

Heidingsfeld reports the results of treatment of 12 cases of Lupus Vulgaris with the local application of a saturated solution of trichloracetic acid to the Lupus nodules. The author claims that the caustic has a selected action for the nodules; pain being slight when the application was followed by a soothing sulphur lotion. Good cosmetic results were obtained and the treatment was prompt in its effect and a number of cases proceeded to complete clinical recovery. The article is well illustrated with nine photographic cuts.

COMPARISON OF RADIUM AND X-RAY IN THE TREATMENT OF SKIN DISEASES AND CANCERS.

Simpson, C. Augustus: The Relative Value of Radium and X-Ray in Treatment of Skin Diseases and Cancer. Southern Medical Journal, Vol. VII, p. 815.

The writer in an article of several pages gives his experience, and quotations from the reports of prominent and experienced Dermatologists and Roentgenologists to the fact that with the proper use of X-ray a general superiority is had over that of Radium in the treatment of cutaneous lesions. The massive dose is advocated and claim is made that this exposure properly measured and properly filtered of the Alpha and Beta rays is as effective as the exposures of large amounts of Radium.

DIFFERENTIAL LEUCOCYTE COUNT.

Miller, S. R., M. D., The Normal Differential Leucocyte Count, Johns Hopkins Hospital Bulletin, No. 284, p. 317.

Miller gives the following table of the normal differential leucocyte count by various authors and calls attention to the wide gap between the figures of Ehrlich and Bunting:

Author.	*P. M. N.*	*P. M. E.*	*P. M. B.*	*S. M.*	*L. M.*	*T.*
1. Pappenheim ..	70-75	2-4	0-1	20-22	2	6
2. Turck—Sahli ..	70-75	2-4	.1-.5	22-25	1	1-4
3. Emerson—Ehrlich	70-72	2-4	.5	22-25	1	1-4
4. Morawitz	65-75	2-4	.5	20	5	7
5. Webster	65-75	2-4	.5	20-25	3	5
6. Wood	65-75	2-4	.5	22-25	1	2-4
7. Krause	65-70	2-3	.5	22-25	3	5
8. Naegeli	65-70	2-4	.5	22-25	3	5
9. Brugsch and S.	65-70	2-4	.5	20-25	3	5
10. Morris	65-70	2-4	.5	22-25	3	5
11. Cabot	60-70	.5-4	.1-.5	20-40	1	10
12. Simon	60-70	1-4	.2-1	20-30	1	6
13. Bunting	50-60	.8-4	.4-1.8	30-40	.6-2	6-8

The different stains used are mentioned as the probable cause in the difference in classification. The stains, however, are not thought to give variations sufficient to account for the difference in percentages. Miller gives a set of figures based on the count made on a set of one hundred selected smears prepared by fifty students. The smears were prepared by the students from their own blood as a part of their course in Clinical Microscopy. Differential count was made on each of these one hundred smears in which two hundred and fifty leucocytes were counted in each smear and a large number of other counts was made bringing the total up to six hundred and fifty. The average percentage values of the leucocytes in normal blood are given as follows for the six hundred and fifty counts:

Polymorphonuclear	64.2%
Eosinophile	2.7%
Basophile	.6%
Small Mononuclear	22.2%
Large Mononuclear	8.0%
Transitional	2.8%

The average for the different cells vary from forty to eighty per cent for polymorphonuclears with three hundred and sixty-two counts varying between sixty and seventy per cent. The small mononuclears vary from less than ten to more than thirty with two hundred and forty-three counts, showing a variation of twenty to twenty-five per cent. The large mononuclears vary from less than five to more than fifteen with three hundred and fifty-nine counts with a variation of five to ten per cent. The transitionals vary from zero to more than four per cent with four hundred and thirteen counts between two and four per cent.

The conclusions drawn by the author on this series of counts are as follows:

"1. The total leucocyte count and differential formula in normal individuals are subject to relatively wide variations, which must be considered in the interpretation of studies made upon the bloods of individuals presumably suffering from abnormal conditions.

2. The interpretation of any differential count should be based upon:

(a) A knowledge of that particular individual's normal blood picture, when possible.

(b) The average values for the locality in which that individual resides.

(c) A consideration of those factors peculiar to the individual which might modify that particular blood.

3. Differential leucocyte counts should always be reported in terms both of percentage and absolute numbers per cubic millimeter, and in all cases, where possible, more than one differential count should be made, especially in borderline cases in which slight changes are to be regarded as of diagnostic or prognostic value.

4. The tendency to ascribe a diagnostic value to lymphocytosis is probably overdone. Only when the mononuclear elements constantly exceed the average percentage, absolute values and upper limits of variation (35-40 per cent) for the community and when all modifying factors are considered, should one attempt to draw valuable conclusions from the figures obtained."

VAGINITIS.

Sharpe, W. B.: The Bacteriology of Vaginitis, The Journal of Infectious Diseases, Vol. XV, No. 2, p. 283.

Sharpe states that vaginitis is often considered of gonorrhoeal nature on account of its clinical resemblance to the disease. Stained smears sometimes show gonococci but often a number of diplococci which are neither typical morphologically nor intracellular. The object of the paper is to determine the true etiology of the condition.

Cultured slides of fifteen cases show the presence of gonococci, staphylococci, colon bacilli and a strain of pseudo-diphtheria. This strain of pseudo-diphtheria was found to be gram positive and pleomorphic. From one of the fifteen cases studied staphylococci, colon bacilli and pseudo-diphtheria were isolated. Aerobic bacteria predominate in pathogenic vaginas while anaerobic bacteria predominate in the normal. Gonococci are often found after the cessation of the discharge and may be responsible for the recurrence so frequently observed. Twenty-six unselected cases showed one or more recurrences at intervals of three weeks to six years and it seems that latent infection is a probable factor.

In order to determine whether the gonococcus had existed, gonococcus toxin was used after the method described by Irons.[1] "Glycerine extract of gonococcal protein introduced on a needle point at two places in the skin, caused zones of hyperemia, which was not produced by two control punctures." Where these zones measured five millimeters and assumed a papular appearance the case was considered positive; a zone from two to four millimeters doubtful, and less than two negative.

The complement fixation test depends on whether the immunity is high or low and the results follow closely those of the skin test. The cases giving a doubtful or negative skin test do not give complement fixation. The production of immunity is a variable factor and not in relation to the amount of discharge. "A negative complement fixation test of the patient's serum has been regarded as evidence of a cure of vaginitis." (Smith.[2]) The work in this article, however, indicates that a negative complement fixation could not be levied upon as indicating a cure since gonococci have been isolated from such cases.

Out of twenty-seven cases studied the gonococcus was isolated from twenty-two cases, complement fixation was positive in nine and gonococcus toxin skin test was positive in ten, and direct examination of smears gave five positive. It seems from the analysis of these that most of the cases of vaginitis were gonorrhoeal and the organisms persisted as long as the discharge.

The secondary invader is either not easily cultivated aerobically or is a normal inhabitant of the vagina. Sharpe found the cutaneous test more delicate than the complement fixation test, but he found that laboratory

[1] Treons, E. E.: Cutaneous Allagy in Gonococcal Infections, The Journal of Infectious Diseases, Vol. XI, No. 1, p. 77.

[2] Smith, G. G.: Complement Fixation Test in Management of Gonococcus Vulvovaginitis, American Journal of Diseases of Children, Vol. V, No. 4, p. 313.

tests are of little value in determining the presence of the gonococcus in these cases.

NEWS ITEMS.

Dr. James H. Randolph, of Jacksonville, visited the state asylum in Chattahoochee during the past month.

The many friends of Dr. W. S. Grambling will regret to learn that he has been seriously ill.

Dr. Iva C. Yeomans, for many years connected with the State Board of Health, has been placed in charge of the new branch laboratory recently opened in Miami.

Dr. A. J. P. Julian, of Lake City, was a visitor in Jacksonville during the past month.

Drs. R. H. McGinnis and P. C. Perry were in Richmond in attendance at the annual meeting of the Southern Medical Association.

Dr. Joseph Y. Porter, State Health Officer, spent a part of October in Key West.

NEW AND NON-OFFICIAL REMEDIES.

Since publication of New and Non-official Remedies, 1914, and of the supplement to New and Nonofficial Remedies, 1914 (July 1, 1914), the following articles have been accepted for inclusion with "N. N. R."

Arlington Chemical Co.:

Arlco Urease.

The Bayer Company, Ind.:

Cymarin, Tablets Cymarin, Ampules Cymarin Solution.

Fougera and Co.:

Electrargol for Injection, 10 cc. Ampules.

Hyson, Wescott and Co.:

Urease-Dunning.

Maltine Co.:

Maltine Malt Soup Extract.

H. K. Mulford Co.:

Hypodermic Tablets of Emetine Hydrochloride; Antidysenteric Serum in vials containing 50 cc.; Antipneumococcic Serum, Polyvalent, syringes containing 20 cc., and vials containing 50 cc.; Antistreptococcis Serum, Polyvalent, vials containing 50 cc.; Antistreptococcic Serum, Scarlatinal, Polyvalent, vials containing 50 cc.; Typho-Serobacterin Mulford, Immunizing, syringes containing 1,000, 2,000 and 2,000 million killed sensitized typhoid bacilli.

Schieffelin and Co.:

Typhoid Combined Vaccine (Prophylactic), vials and syringes containing three doses, 500 million killed typhoid bacilli and 250 million killed paratyphoid bacilli A and 250 million killed paratyphoid bacilli B, while the second and third dose each contain 1,000 million killed typhoid bacilli and 500 million each of killed paratyphoid bacilli A and B.

E. R. Squibb and Sons:

Acne Vaccine, boxes of 4 syringes containing 25, 50, 100 and 200 million killed bacilli, boxes of 2 syringes containing 50 and 200 million killed bacilli, boxes of 6 ampoules containing 10, 25, 50, 100, 200 and 500 million killed bacilli, with syringes, and boxes of 3 ampules containing 50 and 200 million killed bacilli with a syringe. Bacillus Coli Communis Vaccine, boxes of 4 syringes containing 100, 200, 500 and 1,000 million killed bacilli. Also boxes of 2 syringes containing 100 and 500 million killed bacilli and boxes of 2 ampules containing 100 and 500 million killed bacilli, with a syringe. Bacillus Pertussis Vaccine, boxes of 4 syringes containing 25, 50, 100 and 200 million killed bacilli. Also boxes of 2 syringes containing 50 and 200 million killed bacilli. Boxes of 6 ampules containing 25, 50, 100, 200, 300 and 500 million killed bacilli, with a syringe, and boxes of 2 ampules containing 50 and 200 million killed bacilli, with a syringe. Diphtheria Antitoxin, syringes containing 2,000, 3,000, 4,000, 5,000, 7,500, and 10,000 units. Gonococcus Vaccine, 4 syringes containing 100, 200, 350 and 500 million killed gonococci, boxes of 2 syringes containing 100 and 500 million

killed gonococci. Boxes of 6 ampules containing 50, 100, 150, 350, 500 and 1,000 million killed gonococci, with a syringe and boxes of 2 ampules containing 100 and 500 million killed gonococci, with a syringe. Meningococcus Vaccine, Curative, boxes of 4 syringes containing 100, 200, 400 and 500 million killed meningococci. Also boxes of 2 syringes containing 100 and 500 million killed meningococci. Boxes of 6 ampules containing 100, 100, 500, 500, 1,000 and 1,000 million killed meningococci, with a syringe, and boxes of 2 ampules containing 100 and 500 million killed meningococci, with a syringe. Meningococcus Vaccine, Immunizing, boxes of 3 syringes containing 100, 500 and 1,000 million killed meningococci. Pneumococcus Vaccine, boxes of 4 syringes containing respectively 100, 200, 400 and 500 million killed pneumococci, boxes of 2 syringes containing respectively 100 and 500 million killed pneumococci, boxes of 6 ampules containing 10, 100, 500, 500, 1,000 and 1,000 million killed pneumococci, with a syringe, and boxes of 2 ampules containing 100 and 500 million killed pneumococci, with a syringe. Pyocyaneus Vaccine, boxes of 4 syringes containing 100, 200, 500 and 1,000 million killed bacilli. Also in boxes of 2 syringes containing 100 and 500 million killed bacilli. Smallpox (Variola) Vaccine (Glycerinated), each dose in separate aseptic sealed glass tube, with bulb and needles. Boxes of 5 and 10 tubes. Staphylo-Acne Vaccine, boxes of 4 syringes containing 100 million killed staphylococci and 25 million killed acne bacilli, 200 million killed staphylococci and 50 million killed acne bacilli, 400 million killed staphylococci and 100 million killed acne bacilli, and 500 million killed staphylococci and 200 million killed acne bacilli; boxes of 2 syringes containing 100 million killed staphylococci and 50 million killed acne bacilli and 500 million killed staphylococci and 200 million killed acne bacilli, boxes of 2 ampules containing 100 million killed staphylococci and 50 million killed acne bacilli and 500 million killed staphylococci and 200 million killed acne bacilli with a syringe. Staphylococcus Vaccine, boxes of 4 syringes containing 100, 200, 500 and 1,000 million killed staphylococci. Also boxes of 2 syringes containing 100 and 500 million killed staphylococci. Boxes containing 6 ampules containing 100, 250, 500, 500, 1,000 and 2,000 million killed staphylococci, with a syringe, and boxes of 2 ampules containing 100 and 500 million killed staphylococci with a syringe. Streptococcus Vaccine, boxes of 4 syringes containing 100, 200, 500 and 1,000 million killed streptococci. Also boxes of 2 syringes containing 100 and 500 million killed streptococci. Boxes of 2 ampules containing 100 and 500 million killed streptococci, with a syringe. Typhoid Vaccine, Curative, boxes of 4 syringes containing 100, 200, 500 and 1,000 million killed bacilli. Also boxes of 2 syringes containing 100 and 500 million killed bacilli. Boxes of 6 ampules containing 200, 200, 500, 500, 1,000 and 1,000 million killed bacilli, with a syringe and boxes of 2 ampules containing 100 and 500 million killed bacilli, with a syringe. Typhoid Vaccine, Immunizing, boxes of 3 syringes containing 500, 1,000 and 1,000 million killed bacilli.

Waukesha Health Products Co.:
Hepco Flour, Hepco Dodgers, Hepco Grits.

H. M. Alexander & Co.:
Normal Horse Serum; Typhoid Vaccine, Immunizing.

Comar & Cie:
Electrargol; Electrargol for Injections 10 cc. Ampoules.

Farbwerke Hoechst Co.:
Amphotropin; Erepton.

Fairchild Bros. and Foster:
Trypsin.

Franco-American Ferment Co.:
Lactobacilline Tablets; Lactobacilline Liquide, Culture A; Lactobacilline Liquide, Culture D; Lactobacilline Liquide, Infant Culture; Lactobacilline Glycogene Liquide; Lactobacilline Milk Glycogene Liquids; Lactobacilline Milk Tablets; Lactobacilline Milk Ferment; Lactobacilline Suspension.

Hoffman-LaRoche Chemical Works:
Thiocol; Syrup Thiocol, Roche; Thiocol Tablets.

Hynson, Westcott & Co.:
Phenolsulphonephthalein, H. W. and Co.; Phenolsulphonephthalein Ampules, H. W. and Co.; Urease-Dunning.

Merck and Co.:
Cerolin.

H. K. Mulford Co.:
Acne Serobacterin; Anti-Anthrax Serum, Mulford; Antistreptococcus Serum Scarlatina, Mulford; Coli Serobacterin; Culture of Bulgarian Bacillus, Mulford; Disinfectant Krelos, Mulford; Neisser Serobacterin; Pneumo Serobacterin; Salicylos; Scarlatina Strepto Serobacterin; Staphylo-Serobacterin; Staphylo Acne Serobacterin; Strepto Serobacterin; Typho Serobacterin.

Riedel & Co.:
New Bornyval.

Reinschild Chemical Co.:
Phenolphthalein Agar.

E. R. Squibb & Sons:
Sodium Biphosphate, Squibb; Tetanus Antitoxin, Squibb; Tetanus Antitoxin, Squibb, 5,000 Units.

Hoffmann-LaRoche Chemical Works:
Digalen:
The Council has voted that the acceptance of Digalen and Digalen Tablets be rescinded and that these products be omitted from New and Nonofficial Remedies. A report explaining this action has been authorized for publication.

Antiseptic Supply Co.:
Stypstick Applicators, Alum 75 per cent.

Hynson, Westcott and Co.:
Urease-Dunning.

Waukesha Health Products Co.:
Hepco Flour.
Hepco Dodgers.
Hepco Grits.

E. Fougera and Co.:
Electrargol:
At the request of the manufacturer—Comar and Co., Paris—the Council has recognized E. Fougera and Co., New York, as the American selling agents for the product. Also in view of information received from Comar and Co. it has modified the New and Nonofficial Remedies description for Electrargol to indicate that this product now contains the equivalent of .4 per cent. of metallic silver.

HEPCO FLOUR.—A flour prepared from the Soya bean. It is claimed that clinical trial has shown that the small percentage of carbohydrates in Hepco Flour is in the main not sugar-producing, and that it therefore is a suitable food material in cases in which carbohydrates are contraindicated, as in diabetes, amylaceous dyspepsia, etc. Hepco Flour is also sold in the form of biscuits as Hepco Dodgers and a granulated "breakfast food" as Hepco Grits. Waukesha Health Products Company, Waukesha, Wis. (*Jour. A. M. A.*, September 26, 1914, p. 1113.)

THE TREATMENT OF THE OPIUM HABIT.—A great many narcotic habitues owe their start in the habit to the careless, or even criminal manner in which some physicians prescribe or dispense habit-forming drugs. It is a good plan to purchase your supply of these drugs and dispense them as necessary without giving the patient any information as to their nature.

When the habit is once formed many of the unfortunates would be willing to make any sacrifice to be cured of the disease, for such it is, but they are looked upon as pariahs to be shunned, so that they soon lose heart in the struggle, give up in despair and gradually sink lower and lower until death steps in to end the scene. These unfortunates lack the strength to endure the terrible suffering entailed by their attempts to do without their usual dose of the drug.—Melville A. Hays, M. D., in *New York Medical Journal.*